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Information systems, agency problems, and fraud

Special section, information systems frontiers

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1 Editorial

The Internet has revolutionized the rapidity and the efficiency of information flows through the news media and social networks. Intermediaries have developed myriad uses for the Internet, from enabling internationalization through marketing channels, to increasing the speed of communications and transactions. It has also decreased the human and financial resource limitations for entrepreneurs. New forms of Internet-based financing, such as crowdfunding or peer-to-peer lending, for example, have become increasingly widespread.

In terms of corporate governance, the Internet has had a profound effect in several significant ways, such as, e.g., shifts in firm governance from boards of directors to shareholders or backers. This shift to the Internet, in turn, has influenced networks, marketing services, human resource decisions, the offshore outsourcing of labor, and financing. The global reach of the Internet also impacts critical factors such as tax systems, the regulatory environment, legislation, national technological infrastructures, and payment methods.

On a related note, the Internet offers new innovative forms of knowledge transfer, such as Massive Open Online Courses (MOOC) and more cost-effective distance learning technologies. These methods can increase community interaction and simplify fundraising. However, one down side to the Internet is that it can offer new mechanisms to carry out fraud (Cumming et al. 2016). Despite widespread media attention, the relation between information technology and fraud is under researched in academic journals worldwide (see also Weerakkody et al. 2015, for a similar conclusion reviewing related literature specific to government). The evolving structure of financial markets, in conjunction with the Internet, has recently given rise to an avalanche of new work on these topics.

The topics of fraud and information technology, for example, in the context of new forms of entrepreneurial financing like crowdfunding, have been of significant interest in recent literature. Evidence on the evolution and the importance of these topics is illustrated in Fig. 1. By itself, while the Internet as a topic of research has seen its popularity wane in recent years, there has been growth in new research that is clearly focused more on the intersection of the Internet with fraud and information technology (see, e.g., Cumming et al. 2016).

On June 2–3, 2016, Concordia University hosted a special issue conference that featured a timely debate on Information Systems, Agency Problems, and Fraud. Leading researchers from around the world debated topics that included: 1) the role of information technology in mitigating information asymmetries and hence agency problems and fraud, 2) the role of the Internet in facilitating financial transactions and mitigating default and fraud though crowdfunding portals, 3) the financial market consequences of misconduct and fraud, and

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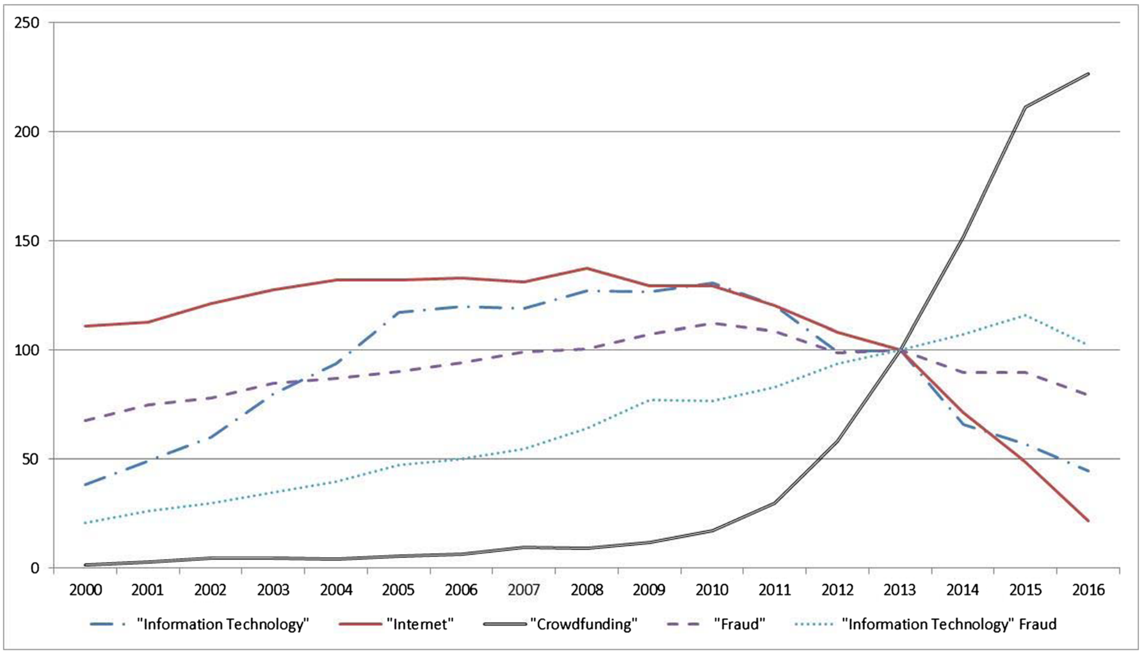

Fig. 1 Google Scholar Hits on Various Search Terms for Information Systems, Agency Problems, and Fraud

4) the governance consequences for firms and management. Specifically, attendees explored whether these consequences are distinct to the information technology sector, and they also focused on how the regulatory regime responds under different institutional environments.

The best papers at the conference were selected for this special section of Information Systems Frontier, and are summarized in Table 1. The papers cover topics ranging from peer-to-peer crowdfunding and loan default, to the prosecution of computer-assisted fraud, to stock price reactions to the commission of fraud.

Tao et al. (2017) study peer-to-peer lending in China, which is one of the fastest growing crowdfunding marketplaces in the world. They find significant evidence that the personal characteristics of borrowers matter when obtaining a loan. The interest rate and the likelihood of default were also important.

The credit ratings assigned to borrowers, in contrast, do not explain the likelihood of default efficiently. The evidence is particularly interesting in this context because it has significant policy implications for the development and regulation of online peer-to-peer lending on crowdfunding markets, as well as the supervisory role of platforms and ratings agencies.

Furthermore, note that several recent studies have studied companies (as opposed to individuals) borrowing from individuals in other contexts. In Germany, e.g., researchers have found differential evidence that credit ratings provided by lenders are more important than firms' financial conditions in determining the likelihood of a borrower obtaining funds and the interest rate (Cumming and Hornuf 2016). Further research may want to more closely examine the differences between individuals versus companies that lend to individuals, and examine the differences across countries and across crowdfunding platforms.

Liao et al. (2017) explore the role of the offender and the offense characteristics in computer-assisted fraud in the U.S. They find that the prosecution and conviction of offenders tend to differ among commonly seen types of frauds, and are dependent on the type of offense. For example, personalized fraud (fake documents and/or fake identities) is less likely to lead to arrest than impersonal fraud (credit card/payment fraud).

Their results provide some key insights to policymakers to assist in the systematic detection and prosecution of computer-assisted fraud, as well as to firms that seek to mitigate fraud in their organizations. Liao et al.'s (2017) evidence also adds to a growing body of important work on the role of competencies and internal audit activity in organizations (Foorthuis et al. 2016; Goldschmidt 2007; Huang et al. 2016; Wu et al. 2016).

Switzer and Wang (2017) and Pukthuanthong et al. (2017) study the share price reaction to fraud in Canada and the U.S., with a focus on how the IT industry and corporate governance mechanisms can mitigate the wealth effects of fraud. They find that fraud has a massive impact on shareholder wealth, but that improved information and corporate governance, as well as more timely governance (such as timelier CEO turnover; Aharony et al. 2015), can mitigate the negative wealth effects. The evidence is consistent with related work

Table 1 Overview of Studies in the Special Issue on Information Systems, Agency Problems, and Fraud

Author(s)	Data Source(s)	Country Samples	Time Period	Dependent Variables	Main Explanatory Variables	Main Findings
Tao et al. (2017)	Renrendai.com	China	1 January 2013–31 December 2015.	Probability of Funding, Interest Rate, Probability of Default	Platform Ratings, Income, Size, Education, Income	Online borrowers with higher income levels and who own a car are more likely to obtain funding, pay lower interest rates, and are less likely to default. The creditworthiness of the platform may not represent the creditworthiness of potential borrowers.
Liao et al. (2017)	National Incident Based Reporting System (NIBRS), which is part of the Uniform Crime Reporting Program and under the Federal Bureau of Investigation	United States	2013	Probability of Arrest in Computer-Assisted Fraud	Type of Offense, Offense Attempted versus Completed, Age, Gender, Resident Status	The prosecution and conviction of offenders differ among commonly seen types of computer-assisted fraud, and bring new evidence to common relations between gender and crime, and severity and punishment. Personalized fraud (fake documents and/or fake identities) are less likely to lead to arrest than impersonal frauds (credit card/payment fraud).
Switzer and Wang (2017)	Bloomberg financial data and press releases	Canada	2000	Stock Market Price Reaction	News Announcements	Insider trading by the president of an information technology firm has massive share price and wealth effects for shareholders.
Pukthuanthong et al. (2017)	Securities and Exchange Commission, Federal Bureau of Investigation, and Internal Revenue Service	United States	1996–2007	Stock Market Price Reaction	News Announcements, Firm Characteristics, and Governance Variables	Financial wrongdoings tend to have pronounced share price reactions. Delayed CEO resignations have a more pronounced negative share price reaction than timely CEO resignations in financial wrongdoing cases. CE0/chairman of the board duality is negatively associated with timeliness in CEO resignations in financial wrongdoing cases. Improved governance and information systems in a firm mitigate negative share price reactions.

This table summarizes the various papers that focus on information systems, agency problems, and fraud in this special issue. The authors, data sources, countries, time periods, variables, and main findings are included. The main findings are largely paraphrased and/or copied from the abstracts of the papers in order to most succinctly represent the authors' contributions. However, they do not exhaustively represent all the findings from the papers that shows the importance of governance in other industries and other countries at a firm level (Agrawal and Cooper 2015; Atanasov et al. 2015; Bernile et al. 2015; Haß et al. 2015; Karpoff et al. 2008a, 2008b; Zhou and Reesor 2015), an intermediary level (Chircop et al. 2017; Cumming et al. 2013; Vismara et al. 2015), and a country level with respect to securities industry computer surveillance (Cumming and Johan 2008), and enforcement (Aitken et al. 2015; Cumming et al. 2011, 2017; see also Cumming et al. 2015, for an overview of the related literature).

Overall, the evidence in this special section on Information Systems Frontiers points to the growing importance of the intersection between information systems and fraud. Information systems have great potential to improve surveillance and corporate governance, as well as mitigate the frequency and severity of fraud. New developments on, e.g., the crowdfunding marketplace, offer new research contexts from which to study fraud. But they also offer new insights into how information systems can enable governance improvements that inform the best practices among industry players and regulators in various institutional contexts around the world. It is our hope that the papers in this special section will inspire a wealth of related research on the topic in the coming years.

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